

51

SPLIT

DART AEROSPACE LTD	Work Order:	21829A
Description: Float Assembly	Part Number:	D3218-041
Dwg: D3218 Rev. A	Qty:	6 12
D3218-041 replaces Helitech P/N: 358-008-001		Page 1 of 1

Step	Location	Procedure	By	Date	Qty
1	DC	Issue Traveler	HJ	04.11.02	12
2	PG	Order bags in multiples of 3 Issue P/O: <u>2007076</u> Supplier: Tulmar Safety Systems D3218-041 Float Assembly per Dwg D3218 Serial No.: BXXXXX-01, BXXXXX-02, etc. Copy of inspection paperwork is required with each Float Assembly			
3	RG	Receive and Inspect for transit damage Ensure inspection paperwork is provided with each Float Assembly	U	04-11-03	12
4	QC5	Review vendor paperwork for completeness - Ensure all pressure tests passed - Ensure all dimensions within tolerance - Ensure Dart inspection performed - Ensure s/n printed on bag matches paperwork/Dart W/O Visually inspect bag for defects - No de-lamination or puckering of seams - Girt attachment OK - No holes through stitching - No excess glue - Valves installed in proper locations	CL	05/01/05	6
5	ST	Re-package and Stock in Kwik Float cell	CL	05/01/12	6
6	AC	Cost / part <u>2277.16</u>	545	05-01-13	6
7	DC	Close W/O <u>2276.62</u> Inspect Level 21	HJ	05.01.14	6

Rev	Date	Change	Revised By	Approved
A	03.11.14	New issue	KJ/DS	#

RELEASED

03.11.19 #

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Mfg / Design Mgr	Approval QC Inspector

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Design Mgr	Approval QC Inspector
			Initial Design Mgr	Action Description Design Mgr	Sign & Date			

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

NOTE: Date & initial all entries

QA: N/C Closed: _____ Date: _____



DESIGN <i>[Signature]</i>	DRAWN BY <i>[Signature]</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>[Signature]</i>	APPROVED <i>[Signature]</i>	DRAWING NO. D3218	REV. A SHEET 1 OF 2
DATE 03.10.06		TITLE FLOAT ASSEMBLY	SCALE NTS
A	03.10.06	NEW ISSUE	

RELEASED

03.12.05 *[Signature]*

D3218-041 FLOAT ASSEMBLY, NOTES:

1) MATERIAL:

ITEM	DESCRIPTION	QTY
FABRIC	POLYURETHANE COATED, PENNEL 987-123 YELLOW	7.20 m
ADHESIVE	SEALREZ S-0345 A/B	2.50 L
WEBBING	LAGRAN #3003, 1" WHITE NYLON	0.31 m
THREAD	NYLON, TWISTED TYPE II, SIZE F, CLASS A, V-T-295, COLOR TAN, CSB 92, COLOR #53	5.00 yds
NYLON CORD	MIL-C-5040 TYPE III, COLOR NATURAL	1.60 m
LETTERING	COATES SCREEN C99 S170 BLACK, HIGH GLOSS	0.50 oz
INFLATION VALVE	MIRADA B-51016 / A-51265	2
PRESSURE RELIEF VALVE	MIRADA B-51019	2
TOPPING VALVE	MIRADA B-51209	2
FLANGE	MIRADA B-51014-N (4.25")	4
FLANGE	HALKEY ROBERTS 981001020 (3.5")	2

2) AFTER MANUFACTURE:

- PRESSURE TEST EACH CHAMBER TO 4.36 PSI (30 kPa) FOR 5 MINS.
- INFLATE TO RELIEF VALVE PRESSURE [MIN OF 3.00 PSI (20.6 kPa)]. RELIEF VALVE MUST OPEN AT 3.3-3.5 PSI AND MUST CLOSE AT NOT LESS THAN 3.00 PSI. BAG MUST MAINTAIN A MIN PRESSURE OF 1.6 PSI (11.0 kPa) FOR 24 HOURS.

3) FLOAT IDENTIFICATION LETTERING 0.313" (7.95mm) HIGH BLACK CAPITAL LETTERS STENCILED ON THE R/H SIDE OF THE FLOAT BAG AS FOLLOWS:

DART AEROSPACE LTD.
FLOAT ASSEMBLY
P/N D3218-041 S/N BXXXXX-XX
REPLACES HELITECH P/N 358-008-001

- COATED SIDE OF FABRIC ON OUTSIDE OF BAG.
- ALL DIMENSIONS ARE IN INCHES. CRITICAL DIMENSIONS (DENOTED BY \triangle) MUST BE OBTAINED AT 2 PSI.
- TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.

SHOP COPY

**RETURN TO
ENGINEERING**

UNCONTROLLED COPY

**SUBJECT TO AMENDMENT
WITHOUT NOTICE**

WORK ORDER

NO. 21829

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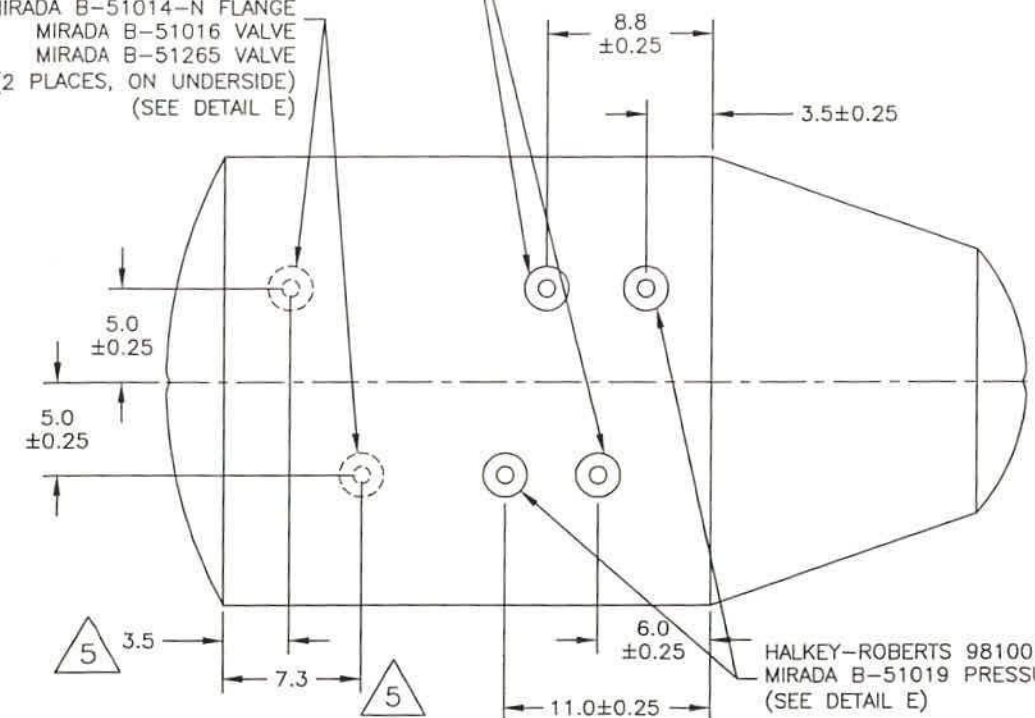
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RELEASED

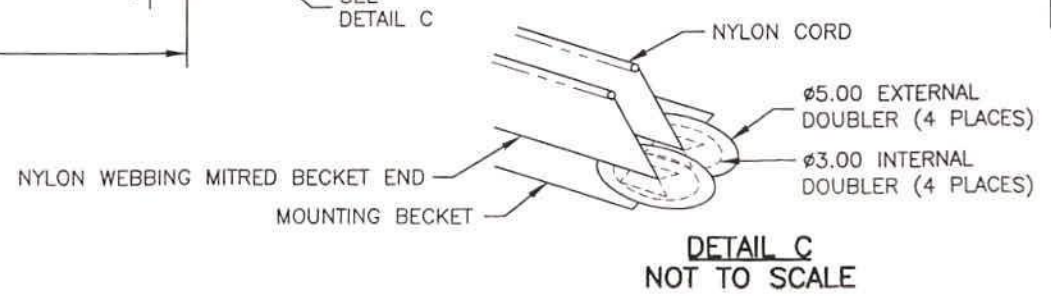
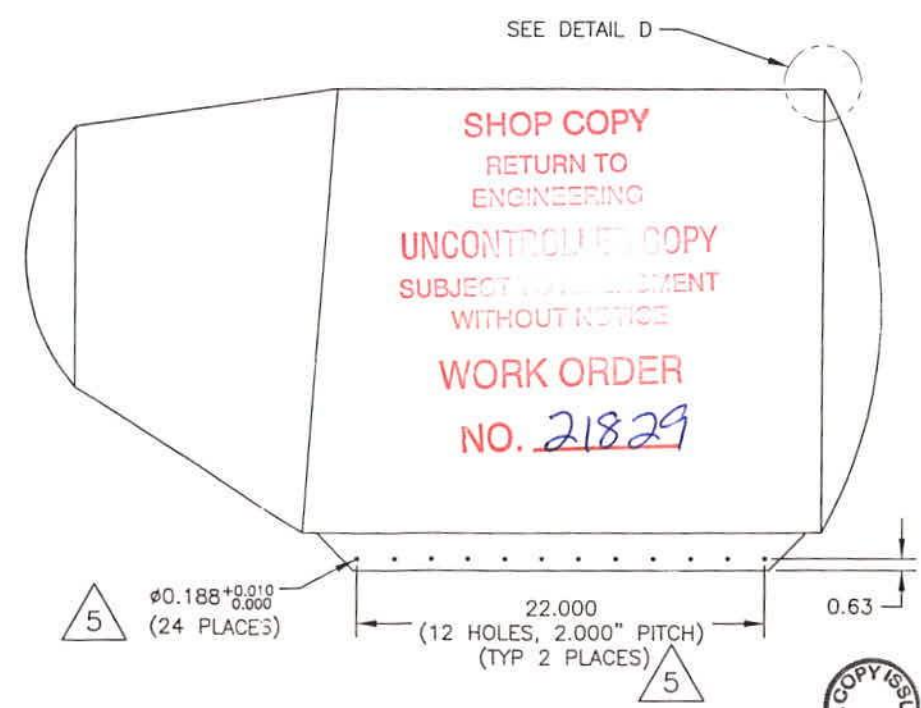
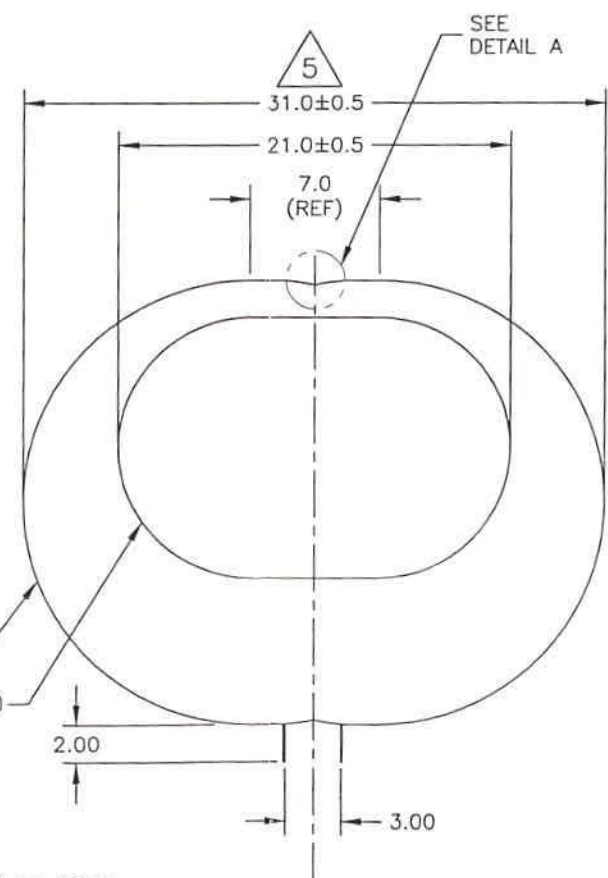
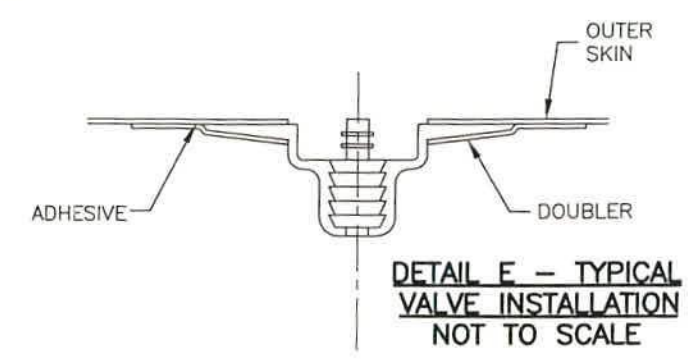
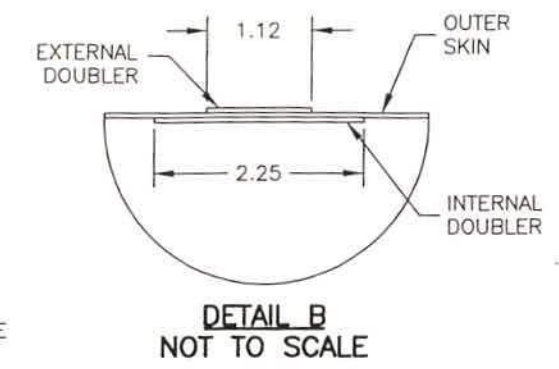
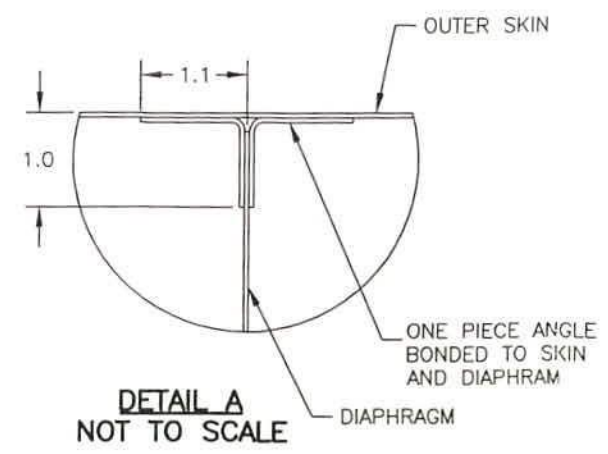
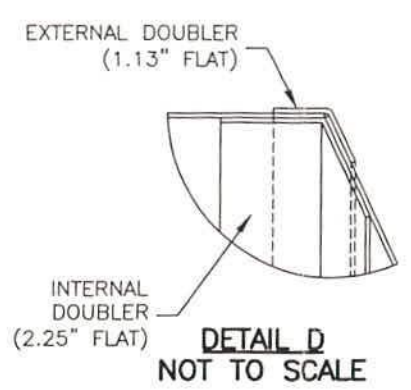
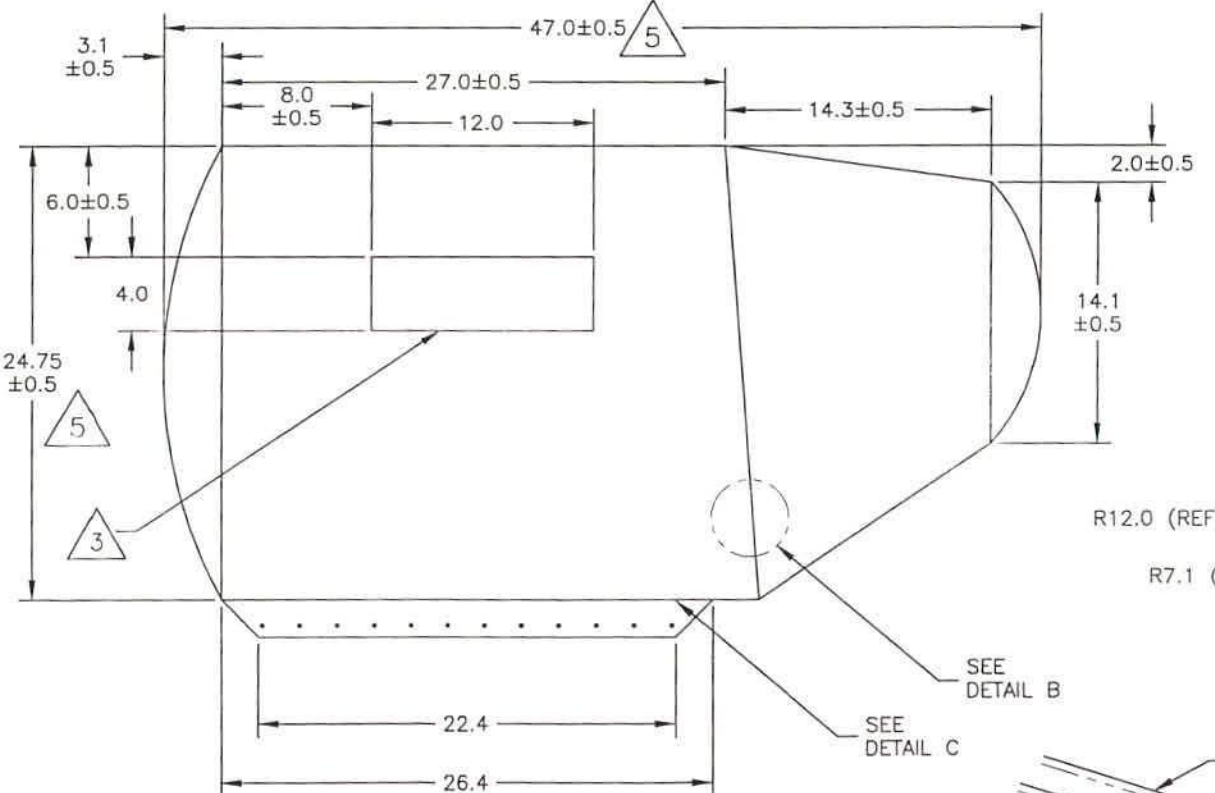
03.12.05

MIRADA B-51014-N FLANGE
MIRADA B-51209 TOPPING VALVE
(SEE DETAIL E)

MIRADA B-51014-N FLANGE
MIRADA B-51016 VALVE
MIRADA B-51265 VALVE
(2 PLACES, ON UNDERSIDE)
(SEE DETAIL E)



HALKEY-ROBERTS 981001020 FLANGE
MIRADA B-51019 PRESSURE RELIEF VALVE
(SEE DETAIL E)



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THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.		CHECKED	APPROVED		
DATE		03.10.06		DRAWING NO. D3218	REV. A
TITLE		FLOAT ASSEMBLY		SHEET 2 OF 2	
				SCALE 1:10	



Job Costing Report

Dart Aerospace Ltd.
Hawkesbury

Nov 02, 2004
02:36 pm

Work Order No : 0021829
Project Name : D3218-041
Project For : WK451
Work Order Type : Main
Main WO Number :
House Part Number : D3218-041
Description : Float Assembly
Manufactured : Yes
Amount Req'd : 12
Amount Done : 0
Start Date : 11-02-04
Est Finish Date : 12-10-04
Act Finish Date :
Drawings Req'd : No
Ok for Approval :
Approval Rec'd :

Department Code:
Burden Flags : NNNNNNNN
WO Status : Open
Invoice State : Not Invoiced
Invoice Date :
Invoice Number :
Invoice Amount : 0.00
Order Entry No :
OE Value : 0.00
Est Margin : 0.000%
Actual Margin : 0.000%
\$0 Posted to Finished Goods

	Estimated	Actual	Var. %	Posted	To Post
Material Cost :	0.00	0.00	0.00	0.00	0.00
Engineering Hours :	0.00	0.00	0.00		
Engineering Cost :	0.00	0.00	0.00	0.00	0.00
Production Hours :	0.00	0.00	0.00		
Production Cost :	0.00	0.00	0.00	0.00	0.00
Packaging Hours :	0.00	0.00	0.00		
Packaging Cost :	0.00	0.00	0.00	0.00	0.00
OverHead Hours :	0.00	0.00	0.00		
OverHead Cost :	0.00	0.00	0.00	0.00	0.00
CNC Hours :	0.00	0.00	0.00		
CNC :	0.00	0.00	0.00	0.00	0.00
Misc. Hours :	0.00	0.00	0.00		
Misc. :	0.00	0.00	0.00	0.00	0.00
Burden :	0.00	0.00	0.00		
Total Cost :	0.00	0.00	0.00		
Margin :	0.000	0.000			
Selling Cost :	0.00	0.00			

	Estimated	Actual
Labour Hrs/Amount Done :	0.00	0.00
Profits/(Loss) :	0.00	0.00

PACKING SLIP

TULMAR

COPY

Packing Slip No

18056

Ship Date

31-Dec-04

Tulmar Safety Systems Inc.

1123 Cameron Street
Hawkesbury, ON K6A 2B8 CA
Tel: 613-632-1282
Fax: 613-632-2030
www.tulmar.com
email: info@tulmar.com

Bill No:

Dart Aerospace

1270 Aberdeen Street
Hawkesbury, ON K6A 1K7. Canada

Ship To:

Dart Aerospace

1270 Aberdeen Street
Hawkesbury, ON K6A 1K7. Canada

Order number	Sales order date	Account number	Account manager
14700	5-Nov-04	CDART100	Barney Bangs
PO number	Ship Via	PPD/COL	
2007076	Pick-Up		
Item No.	Quantity ordered	UOM	Qty Shipped/Returned
Description			Quantity on back order

8927

Float Assembly, individual bag/P/N: D3218-041

12

EA

6

6

Drawing No: D3218

P/N: BHA/RDA/358-11-01,Rev NR

P/N .D3218-041

Revision A

Must use Sealrez S-0345A/B adhesive.

S/N: B21829-01 to -12

Lot No:	B21829-00000001	Qty:	1	Lot No:	B21829-00000002	Qty:	1	Lot No:	B21829-00000003	Qty:	1
Lot No:	B21829-00000004	Qty:	1	Lot No:	B21829-00000005	Qty:	1	Lot No:	B21829-00000006	Qty:	1

RELEASE NOTE: R92-10158

4/1/05

TULMAR

Release Note

TULMAR SAFETY SYSTEMS INC.

Revision 05/08/01 Form 458

1123 Cameron Street,

Hawkesbury, Ont. Canada K6A 2B8

Tel: (613)632-1282

Fax: (613)632-2030

COPY

R/N No. **R92-10158**

Date: **12/31/2004**

Sold To:

Shipped To:

DART AEROSPACE LTD

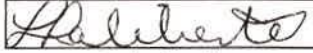
1270 Aberdeen Street

Hawkesbury, ON K6A 1K7

Your Order		Conveyance	Our Order No.		P/S No.	
2007076		Pick Up	14700		18056	

Item	Description	Qty Ordered	Spec'n No.	Qty Shipped	Incoming Release No.	Batch
1.	FLOAT ASSY, individual bag/	12	TSS8927	6		
	P/N: D3218-041	0				
	S/N: B21829-01 to 06 inc.	0				
		0				
		0				
	iaaw DWG: D3218 Rev NR	0				
	DOM: 12/2004	0				
		0				
		0				
		0				
		0				
		0				
		0				
		0				
		0				
		0				
		0				
		0				
		0				

I hereby certify that the items listed hereon have been inspected, tested, and conform to all specifications and requirements detailed in the contract or purchase order.

	12/31/2004
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Authorized Inspector Date

Sales Order Acknowledgement

TULMAR

Order No 14700 Order Date 5-Nov-04 Page 1

Tulmar Safety Systems Inc.
1123 Cameron Street
Hawkesbury, ON K6A 2B8 CA

Tel: 613-632-1282
Fax: 613-632-2030

Customer Purchase Order
2007076

Contact:

Bill To

Dart Aerospace
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
CA

Ship To

Dart Aerospace
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
CA

Dear Customer,

This document acknowledges receipt of your order. Please review the information presented here and advise us of any errors you notice or disagreements you have at your earliest convenience. For fastest service, write or call us at the address and phone number printed above. Please refer to our Order Number and your P.O. Number in all correspondence.

Customer	Payment Terms	PPD/COL	Shipping Instructions
CDART100	Net 30 Days Pick-Up		FOB HAWKESBURY
Item No	Ship Date	Quantity	UOM

8927 11-Dec-04
Float Assembly, individual bag
P/N: D3218-041
P/N .D3218-041
Revision A
Must use Sealrez S-0345A/B adhesive.

12 EA
- 6 Dec. 31/04 S/N: 21829 - 01
6 - 02
- 03
- 04
- 05
- 06

S/N: B21829 - 01 TO - 12
added Nov. 23.04 SBC

Dec. 23/04
(Jan. 1/05)

3664

Sales amount
Sales tax:
Total

Product Inspection Form # 193-8927(Tube & Final)

Rev. D Sheet 1 of 1

Description: Float Bag Assembly

-Items are Manufactured IAW Process Control Specification No. 001, 002, 003, 004, 005, 006, and are to be 100% inspected I.A.W. P.I.P. 001

W/O: 3663 TSS P/N: 8927 Qty.: 1 Customer P/N: D3218-041 Dwg. No.: D3218 Rev.: A Date: Nov. 16/04

Cutting IAW PCS 003		Marking IAW PCS 004		Bonding IAW PCS 002		Silkscreen	
Operator No.	Date	Operator No.	Date	Operator No.	Date	Operator No.	Date
85	Nov. 30/04	73	Dec 01/04	(Documented below)		73	Dec 15/04
						73	Nov. 15/04

Note: PCS 006, there shall be a total of 2 samples submitted for the Testing of the Adhesive (Peel and Shear Test), at start and end of every production day, record on sheet 3/3

Stages & Descriptions	Operator No. + Date	Operation	Accept. Qty.	Reject. Qty.	NCR	Total Accept.	Insp. Stamp	Date
1- a) a) Attach Panel A (uneven edge) to larger edge of Panel B, centered on a 2" inner tape (butt joint) ± 1/8"	37 Nov. 16/04	Bonding	1	—	—	1	IS 11	Nov. 16/04
b) Attach (6) Valve Flanges on Panel A: 2-Relief, 2-Inlet & 2- Topping Up	37 Nov. 15/04		6	—	—	6		Nov. 16/04
c) Attach (6) Doublers on above Flanges	37 Nov. 16/04		6	—	—	6		Nov. 16/04
2- a) Attach Panel C to Straight edge of Panel A, centered on a 2" inner Tape (butt joint) ± 1/8"	37 Nov 16/04	7104 25	1	—	—	1	IS 11	Nov. 16/04
3- a) Att. Panel D to Panel B (shorter edge) with 2" inner Tape	37 Nov. 16/04	Bonding	1	—	—	1		Nov. 16/04
4- a) Baffle Ass'y. with 2" Tape ± 1/8"	37 Nov 16/04		1	—	—	1		Nov. 16/04
5- a) Attach Baffle Ass'y. to Bag (in 3 stages, minimum)	37 Nov 17/04		1	—	—	1	IS 11	Nov. 17/04
6- a) Perform Baffle Test on Chamber # 1 after a 3 day Cure Time	12 Nov. 23/04	Testing (see sheet 2)	1	—	—	1		Nov. 23/04
7- a) Closure of 1" Main Seam (overlap) ± 1/8"	37 Nov. 23/04	7104 25	1	—	—	1		Nov. 23/04
b) Attach ID Patch (ref. CAR 04-003) 117 16dec 04	12 Nov. 24/04	Bonding	1	—	—	1	IS 11	Nov. 29/04
8- a) Perform Baffle Test on Chamber # 2 after a 3 day Cure Time	12 Nov. 30/04	Testing (see sheet 2)	1	—	—	1		Nov. 30/04
9- a) Attach 1" wide Finishing Tape on all Butt Joints & Main Seam, Centered ± 1/8"	37 Nov. 30/04	7104 25	1	—	—	1		Nov. 30/04
b) Att. Inspected Girt Ass'y. (Form 193-8927, Girt) to Bag	37 Nov. 30/04	Bonding	1	—	—	1	IS 11	Nov. 30/04
c) Attach 5" split patch on each end (x 4)	37 Nov. 30/04		1	—	—	1		Nov. 30/04

Upon completion of the (final) leakage test, the ID Patch shall be stamped with 5/16" high lettering and black ink: serial number (7 digits), provided by DARL (refer to W-01) * Verify the integrity of the Valves (4 brands gaskets)

Observations: *

Final Test: Leakage / Relief Valves: The chambers are to be tested separately (one at a time). Through the Topping Up Valve, inflate chamber to approximately 2.00 PSI, soap the (3) valves to detect leakage. Then slowly inflate chamber until pressure relief valve vents. Use leak detector or non detergent soap to detect the opening and the closing. A hissing sound may also denote that the valve has started to open. Record the opening/closing time and pressure. The opening pressure shall be between 3.3 - 3.5 PSI and the closing pressure shall not be less than 3.00 PSI, in order for the test to be acceptable. After 24 hours, take the pressure reading of the chamber. Compensate the pressure reading by allowing for any temperature and barometric pressure changes during the test period (see sheet 2). The corrected pressure reading shall not be less than 1.60 PSI in order for the Test to be acceptable.

Upon completion of the Final Test, inflate both chambers equally to approx. 2.00 PSI and perform Dimensional Verification below. Perform additional inspection of the tapes and girt assembly.

Pressure Relief Valve Test		Opening		Closing		Pass / Fail
Chamber #	PRV Serial Numbers	Time ON	Pressure	Time	Close	
Chamber # 1	32846	9:45	3.42 PSI	9:50	3.18 PSI	Pass
Chamber # 2 (Main Seam)	32863	12:10	3.50 PSI	12:15	3.36 PSI	Pass

Chambers	Design (closing) Pressure as per above	24 Hour Leakage Test								17 % humidity	
		Time On	Time Off	Read'g	Temp. Start/End		Barom. Start/End		Adjust.	Final Read'g	Pass / Fail
DEC 1/04											
# 1	3.18 PSI	9:50	9:50	2.34 PSI	22 ^c	23 ^c	29.24	29.78	0.054	2.65 PSI	Pass
Re-Test									0.264		
# 2 (Main Seam)	3.36 PSI	12:15	12:15	2.10 PSI	23 ^c	23 ^c	29.78	29.58	0.098	2.00 PSI	Pass
Re-Test											

Dim.	Tol.	Actual Dim.	Pass/Fail	Dim.	Tol.	Actual Dim.	Pass/Fail	Dim.	Tol.	Actual Dim.	Pass/Fail
3.5	± 0.100 *	3.5	Pass	47.0	+ 0.5	47	Pass	24.75	± 0.5	25.1/4	Pass
7.3	± 0.100 *	7.25	Pass					31.0	± 0.5	31	Pass

* = IAW QSI 018, rev. A dated 03-05-29

Submission of Adhesive Testing:

Peel	24 hour	Subm. Date / am-pm	Pass/Fail	Subm. Date / am-pm	Pass/Fail	Subm. Date / am-pm	Pass/Fail	Subm. Date / am-pm	Pass/Fail
		Nov 16/04	Pass	Nov 17/04	Pass	Nov 22/04	Pass	Nov 23/04	Pass
Shear	7 day	Nov 16/04	Pass	Nov 17/04	Pass	Nov 22/04	Pass	Nov 23/04	Pass
		Nov 16/04	Pass	Nov 17/04	Pass	Nov 22/04	Pass	Nov 23/04	Pass

Final Test: Leakage / Relief Valves: The chambers are to be tested separately (one at a time). Through the Topping Up Valve, inflate chamber to approximately 2.00 PSI, soap the (3) valves to detect leakage. Then slowly inflate chamber until pressure relief valve vents. Use leak detector or non detergent soap to detect the opening and the closing. A hissing sound may also denote that the valve has started to open. Record the opening/closing time and pressure. The opening pressure shall be between 3.3 – 3.5 PSI and the closing pressure shall not be less than 3.00 PSI, in order for the test to be acceptable. After 24 hours, take the pressure reading of the chamber. Compensate the pressure reading by allowing for any temperature and barometric pressure changes during the test period (see sheet 2).

The corrected pressure reading shall not be less than 1.60 PSI in order for the Test to be acceptable.

Upon completion of the Final Test, inflate both chambers equally to approx. 2.00 PSI and perform Dimensional Verification below. Perform additional inspection of the tapes and girt assembly.

Pressure Relief Valve Test	PRV Serial Numbers	Opening		Closing		Pass / Fail
		Time ON	Pressure PSI	Time	Close PSI	
Chamber # 1			PSI		PSI	
Chamber # 2 (Main Seam)			PSI		PSI	

Chambers	Design (closing) Pressure as per above	24 Hour Leakage Test							
		Time On	Time Off	Read'g	Temp. Start/End	Barom. Start/End	Adjust.	Final Read'g	Pass / Fail
# 1	PSI			PSI				PSI	
Re-Test									
# 2 (Main Seam)	PSI			PSI				PSI	
Re-Test									

Dim.	Tol.	Actual Dim.	Pass/Fail	Dim.	Tol.	Actual Dim.	Pass/Fail	Dim.	Tol.	Actual Dim.	Pass/Fail
3.5	± 0.100 *			47.0	± 0.5			24.75	± 0.5		
7.3	± 0.100 *							31.0	± 0.5		

* = IAW QSI 018, rev. A dated 03-05-29

Submission of Adhesive Testing:

		Subm.Date / am-pm	Pass/Fail	Subm.Date / am-pm	Pass/Fail	Subm.Date / am-pm	Pass/Fail	Subm.Date / am-pm	Pass/Fail
Peel	24 hour	Nov 29/04	Pass	Nov 30/04	Pass	Nov 30/04	Pass	Jan 3/05	Pass
	7 day	Nov 29/04	Pass	Nov 30/04	Pass	Nov 30/04	Pass		
Shear	24 hour	Nov 29/04	Pass	Nov 30/04	Pass	Nov 30/04	Pass	Jan 3/05	Pass
	7 day	Nov 29/04	Pass	Nov 30/04	Pass	Nov 30/04	Pass		

Description: Float Bag Assembly

Items are Manufactured IAW Process Control Specification No. 001, 002, 003, 004, 005, 006, and are to be 100% inspected I.A.W. P.I.P. 001

W/O: 3663 TSS P/N: 8927 Qty.: 1 Customer P/N: D3218-041 Dwg. No.: D3218 Rev.: A Date: _____

Cutting IAW PCS 003		Marking IAW PCS 004		Bonding IAW PCS 002		Silkscreen	
Operator No.	Date	Operator No.	Date	Operator No.	Date	Operator No.	Date
85	Nov. 30/04	73	Dec 01/04	(Documented below)		73	Dec 15/04
						73	Nov. 15/04

* Note: PCS 006, there shall be a total of 2 samples submitted for the Testing of the Adhesive (Peel and Shear Test), at start and end of every production day, record on sheet 3/3

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1- a) Attach Panel A (uneven edge) to larger edge of Panel B, centered on a 2" inner tape (butt joint) \pm 1/8"	37 18 Nov 04	Bonding	1	—	—	1	11	Nov 18/04
b) Attach (6) Valve Flanges on Panel A: 2-Relief, 2-Inlet & 2- Topping Up	37 17 Nov 04		6	—	—	6		Nov 18/04
c) Attach (6) Doublers on above Flanges	18 Nov. 04		6	—	—	6		Nov 18/04
2- a) Attach Panel C to Straight edge of Panel A, centered on a 2" inner Tape (butt joint) \pm 1/8"	18 Nov 04 37	Bonding	1	—	—	1	11	Nov 18/04
3- a) Att. Panel D to Panel B (shorter edge) with 2" inner Tape	18 Nov. 04 37		1	—	—	1		Nov 18/04
4- a) Baffle Ass'y. with 2" Tape \pm 1/8"	117 17 Nov 04		1	—	—	1		Nov 19/04
5- a) Attach Baffle Ass'y. to Bag (in 3 stages, minimum)	37 18 Nov. 04	Testing	1	—	—	1	11	Nov 18/04
6- a) Perform Baffle Test on Chamber # 1 after a 3 day Cure Time	12 Nov 23/04		1	—	—	1		Nov 23/04
7- a) Closure of 1" Main Seam (overlap) \pm 1/8"	37 Nov 23/04		1	—	—	1		Nov 23/04
b) Attach ID Patch (ref. CAR 04-003) 117 18 Dec 04	12 Nov 29 2004	Bonding	1	—	—	1	11	Nov 27/04
8- a) Perform Baffle Test on Chamber # 2 after a 3 day Cure Time	12 Nov 29 2004		1	—	—	1		Nov 29/04
9- a) Attach 1" wide Finishing Tape on all Butt Joints & Main Seam, Centered \pm 1/8"	37 Nov 29 2004		1	—	—	1		Nov 30/04
b) Att. Inspected Girt Ass'y. (Form 193-8927, Girt) to Bag	37 Nov 30/04	Bonding	1	—	—	1	11	Nov 30/04
c) Attach 5" split patch on each end (x 4)	37 Nov 30/04		1	—	—	1		Nov 30/04

Stages & Descriptions	Operator No. + Date	Operation	Accept. Qty.	Reject. Qty.	NCR	Total Accept.	Insp. Stamp	Date
10- a) Final Test b) Inspector to Stamp on ID Patch: Serial No.: B 21829-02 & Inspection Stamp beside the S/N	12 Dec 3/04	Testing (see sheet 3)	1	-	-	1	4	Dec 3 2004
	12 Dec 23/04		1	-	-	1		Dec 23/04

Upon completion of the (final) leakage test, the ID Patch shall be stamped with 5/16" high lettering and black ink: serial number (7 digits), provided by DART (refer to W/O). * Verify the integrity of the Valves (Threads/gaskets).

Test Conditions – All tests shall be performed in the following conditions:

a) Atmospheric pressure between 28 to 32 inches of mercury (94.8 kPa to 108.4 kPa) b) Temperature shall be 20°C ± 5°C c) Relative humidity shall be 80 % or less

Baffle Test:

Over Pressure: Using socket tool and torque wrench s/n 0801300327, tight all (3) Valves to 40 inch pound, the JIC adaptor s/n 44537 between 15 to 20 foot pounds. Block the Relief valve with flagged pin. Inflate Chamber to 4.36 PSI (30 kPa) with clean dry air source. Using leak detector or non detergent soap, check all the valves and seams to detect leakage. Leakage shall be cause for rejection (soap during testing period). Fuzz is not considered a failure. After 5 minutes, there shall be no evidence of distortion or damage to the seams.

Inflation Test: Lower Chamber to 3.00 psi , re-adjust after 45 minutes. After 1 hour, take the pressure reading of the chamber. Compensate the pressure reading by allowing for any temperature and barometric pressure changes during the test period. The corrected pressure reading shall not be less than 2.94PSI in order for the Test to be acceptable.

- 0.054 PSI for each 1°C of temperature increase + 0.054 PSI for each 1°C of temperature decrease
+ 0.049 PSI for each 0.1 inch of barometric increase - 0.049 PSI for each 0.1 inch of barometric decrease

Chambers	Pressure	5 Min. Over P. & Soap Test	45 Minute Stabilizing Period			1 Hour Test									19 % <i>hurry</i>	
		Pass / Fail	Design Pressure	Time On	Time Off	Design Pressure	Time On	Time Off	Read'g	Temp. Start/End	Barom. Start/End	Adjust.	Final Read'g	Pass / Fail		
# 1 (see note 1)	4.36 PSI	<i>Pass</i>	3.00 PSI	8:45	9:30	3.00 PSI	9:30	10:30	3.81 PSI	21°	21°	29.89	29.7	-0.008	2.99 PSI	<i>Pass</i> 2.99 PSI
Re-Test																
# 2 (Main Seam)	4.36 PSI	<i>Pass</i>	3.00 PSI	11:00	11:45	3.00 PSI	11:45	12:45	2.98 PSI	22	22	30.13	30.12	-0.004	2.97 PSI	<i>Pass</i> 2.97 PSI
Re-Test																

Note 1: Chamber # 1 requires Dart Aerospace Approval Signature: Chris Brown

Date: 04/11/07

Observations: Small/frequent bubbles in the seam to be glued/checked. Small amount of lifting at valve to be fixed/checked.

Final Test: Leakage / Relief Valves: The chambers are to be tested separately (one at a time). Through the Topping Up Valve, inflate chamber to approximately 2.00 PSI, soap the (3) valves to detect leakage. Then slowly inflate chamber until pressure relief valve vents. Use leak detector or non detergent soap to detect the opening and the closing. A hissing sound may also denote that the valve has started to open. Record the opening/closing time and pressure. The opening pressure shall be between 3.3 - 3.5 PSI and the closing pressure shall not be less than 3.00 PSI, in order for the test to be acceptable. After 24 hours, take the pressure reading of the chamber. Compensate the pressure reading by allowing for any temperature and barometric pressure changes during the test period (see sheet 2).

The corrected pressure reading shall not be less than 1.60 PSI in order for the Test to be acceptable.

Upon completion of the Final Test, inflate both chambers equally to approx. 2.00 PSI and perform Dimensional Verification below. Perform additional inspection of the tapes and girt assembly.

Pressure Relief Valve Test	PRV Serial Numbers	Opening		Closing		Pass / Fail
		Time ON	Pressure	Time	Close	
Chamber # 1	32866	9:25	3.49 PSI	9:30	3.30 PSI	Pass
Chamber # 2 (Main Seam)	32854	12:40	3.40 PSI	12:45	3.14 PSI	Pass

Chambers	Design (closing) Pressure as per above	24 Hour Leakage Test								Humidity 19%	
		Time On	Time Off	Read'g	Temp. Start/End		Barom. Start/End		Adjust.	Final Read'g	Pass / Fail
dec 12004											
# 1	3.30 PSI	9:30	9:30	2.33 PSI	22°	23°	29.28	29.76	+0.054 Bar +0.225	2.40 PSI	Pass
Re-Test											
# 2 (Main Seam)	3.14 PSI	12:45	12:45	2.07 PSI	23°	23°	29.78	29.58	-0.098	1.97 PSI	Pass
Re-Test											

Dim.	Tol.	Actual Dim.	Pass/Fail	Dim.	Tol.	Actual Dim.	Pass/Fail	Dim.	Tol.	Actual Dim.	Pass/Fail
3.5	± 0.100 *	3.5	Pass	47.0	± 0.5	46 7/8	Pass	24.75	± 0.5	25 1/8	Pass
7.3	± 0.100 *	7.3	Pass					31.0	± 0.5	31 1/8	Pass

* = IAW QSI 018, rev. A dated 03-05-29

Submission of Adhesive Testing:

	Subm. Date / am-pm	Pass/Fail	Subm. Date / am-pm	Pass/Fail	Subm. Date / am-pm	Pass/Fail	Subm. Date / am-pm	Pass/Fail
Peel	24 hour	Nov 17/04	Pass	Nov 18/04	Pass	Nov 29/04	Pass	Nov 29/04
	7 day	Nov 17/04	Pass	Nov 18/04	Pass	Nov 29/04	Pass	Nov 29/04
Shear	24 hour	Nov 17/04	Pass	Nov 18/04	Pass	Nov 29/04	Pass	Nov 29/04
	7 day	Nov 17/04	Pass	Nov 18/04	Pass	Nov 29/04	Pass	Nov 29/04

#1 Description: Float Bag Assembly

-Items are Manufactured IAW Process Control Specification No. 001, 002, 003, 004, 005, 006, and are to be 100% inspected I.A.W. P.I.P. 001

W/O: 3664 TSS P/N: 8927 Qty.: 12 Customer P/N: D3218-041 Dwg. No.: D3218 Rev.: A Date: _____

Cutting IAW PCS 003		Marking IAW PCS 004		Bonding IAW PCS 002		Silkscreen	
Operator No.	Date	Operator No.	Date	Operator No.	Date	Operator No.	Date
85	Nov. 30/04	73	Dec 01/04	(Documented below)		73	Dec. 15/04
						73	Nov. 15/04

* Note: PCS 006, there shall be a total of 2 samples submitted for the Testing of the Adhesive (Peel and Shear Test), at start and end of every production day, record on sheet 3/3

Stages & Descriptions	Operator No. + Date	Operation	Accept. Qty.	Reject. Qty.	NCR	Total Accept.	Insp. Stamp	Date
1- a) Attach Panel A (uneven edge) to larger edge of Panel B, centered on a 2" inner tape (butt joint) ± 1/8"	37	7104-25	1	-	-	1	TSS 11	Dec 1/04
b) Attach (6) Valve Flanges on Panel A: 2-Relief, 2-Inlet & 2- Topping Up	1 st dec. 04		6	-	-	6		Dec 1/04
c) Attach (6) Doublers on above Flanges			6	-	-	6		Dec 1/04
2- a) Attach Panel C to Straight edge of Panel A, centered on a 2" inner Tape (butt joint) ± 1/8"	37	7104-25	1	-	-	1	TSS 11	Dec 1/04
3- a) Att. Panel D to Panel B (shorter edge) with 2" inner Tape	37	7104-25	1	-	-	1	TSS 11	Dec 1/04
4- a) Baffle Ass'y. with 2" Tape ± 1/8"	Helene 117 1 st dec 04	Bonding	1	-	-	1	TSS 11	Dec 1/04
5- a) Attach Baffle Ass'y. to Bag (in 3 stages, minimum)	117 2 dec 04		1	-	-	1	TSS 11	Dec 2/04
6- a) Perform Baffle Test on Chamber # 1 after a 3 day Cure Time	12 Dec 7/04	Testing (see sheet 2)	1	-	-	1	TSS A	Dec 7/04
7- a) Closure of 1" Main Seam (overlap) ± 1/8"	37	7104-26	1	-	-	1	TSS A	Dec 9/04
b) Attach ID Patch (ref. CAR 04-003)	37 16 dec. 04		1	-	-	1		Dec 17/04
8- a) Perform Baffle Test on Chamber # 2 after a 3 day Cure Time	12 13 dec 2004	Testing (see sheet 2)	1	-	-	1	TSS A	Dec. 13/04
9- a) Attach 1" wide Finishing Tape on all Butt Joints & Main Seam, Centered ± 1/8"	37 13 dec. 04	7104-26	1	-	-	1	TSS 11	Dec 17/04
b) Att. Inspected Girt Ass'y. (Form 193-8927, Girt) to Bag	37 15 dec 04		1	-	-	1		Dec 17/04
c) Attach 5" split patch on each end (x 4)	117 16 dec 04		4	-	-	4	TSS 11	Dec 17/04

Final Test: Leakage / Relief Valves: The chambers are to be tested separately (one at a time). Through the Topping Up Valve, inflate chamber to approximately 2.00 PSI, soap the (3) valves to detect leakage. Then slowly inflate chamber until pressure relief valve vents. Use leak detector or non detergent soap to detect the opening and the closing. A hissing sound may also denote that the valve has started to open. Record the opening/closing time and pressure. The opening pressure shall be between 3.3 - 3.5 PSI and the closing pressure shall not be less than 3.00 PSI, in order for the test to be acceptable. After 24 hours, take the pressure reading of the chamber. Compensate the pressure reading by allowing for any temperature and barometric pressure changes during the test period (see sheet 2).

The corrected pressure reading shall not be less than 1.60 PSI in order for the Test to be acceptable.

Upon completion of the Final Test, inflate both chambers equally to approx. 2.00 PSI and perform Dimensional Verification below. Perform additional inspection of the tapes and girt assembly.

Pressure Relief Valve Test	PRV Serial Numbers	Opening		Closing		Pass/Fail
		Time ON	Pressure	Time	Close	
Chamber # 1	33180	8:10	3.20 PSI	8:15	3.00 PSI	Pass
Chamber # 2 (Main Seam)	33189	8:20	3.50 PSI	8:25	3.00 PSI	Pass

Chambers	Design (closing) Pressure as per above	24 Hour Leakage Test								hung 3%	
		Time On	Time Off	Read'g	Temp. Start/End		Barom. Start/End		Adjust.	Final Read'g	Pass Fail
Dec 20 2004 # 1	3.00 PSI	8:15	8:15	2.17 PSI	24°	23°	29.87	29.82	+0.054 -0.024	2.19 PSI	Pass
Re-Test											
Dec 21/04 # 2 Main Seam)	3.00 PSI	8:25	8:25	1.88 PSI	23°	23°	29.81	29.95	+0.068	1.94 PSI	Pass
Re-Test											

Dim.	Tol.	Actual Dim.	Pass/Fail	Dim.	Tol.	Actual Dim.	Pass/Fail	Dim.	Tol.	Actual Dim.	Pass/Fail
5	± 0.100 *	3.5	Pass	47.0	± 0.5	46 3/4	Pass	24.75	± 0.5	25.25	Pass
3	± 0.100 *	7.35	Pass					31.0	± 0.5	31 3/16	Pass

* = IAW QSI 018, rev. A dated 03-05-29

Submission of Adhesive Testing:

		Subm. Date / am-pm	Pass/Fail	Subm. Date / am-pm	Pass/Fail	Subm. Date / am-pm	Pass/Fail	Subm. Date / am-pm	Pass/Fail
Peel	24 hour	Dec 1/04	Pass	Dec 1/04	Pass	Dec 15/04	Pass		
	7 day	Dec 1/04	Pass	Dec 1/04	Pass	Dec 15/04	Pass		
Shear	24 hour	Dec 1/04	Pass	Dec 1/04	Pass	Dec 15/04	Pass		
	7 day	Dec 1/04	Pass	Dec 1/04	Pass	Dec 15/04	Pass		

TULMAR**Product Inspection Form # 193-8927(Tube & Final)**

Rev. D Sheet 1 of 3

#3

Description: Float Bag Assembly

-Items are Manufactured IAW Process Control Specification No. 001, 002, 003, 004, 005, 006, and are to be 100% inspected I.A.W. P.I.P. 001

W/O: 3664 TSS P/N: 8927 Qty.: 12 Customer P/N: D3218-041 Dwg. No.: D3218 Rev.: A Date: _____

Cutting IAW PCS 003		Marking IAW PCS 004		Bonding IAW PCS 002		Silkscreen	
Operator No.	Date	Operator No.	Date	Operator No.	Date	Operator No.	Date
85	Nov 30/04	73	Dec 01/04	(Documented below)		73	Dec 15/04
						73	Nov. 15/04

* Note: PCS 006, there shall be a total of 2 samples submitted for the Testing of the Adhesive (Peel and Shear Test), at start and end of every production day, record on sheet 3/3

Stages & Descriptions	Operator No. + Date	Operation	Accept. Qty.	Reject. Qty.	NCR	Total Accept.	Insp. Sign	Date
1- a) Attach Panel A (uneven edge) to larger edge of Panel B, centered on a 2" inner tape (butt joint) $\pm 1/8"$	37 2 dec. 04	7104-25 Bonding	1	—	—	1	11	Dec 2/04
b) Attach (6) Valve Flanges on Panel A: 2-Relief, 2-Inlet & 2- Topping Up	37 1 dec. 04		6	—	—	6	11	Dec 1/04
c) Attach (6) Doublers on above Flanges	37 1 dec. 04		6	—	—	6	11	Dec 1/04
2- a) Attach Panel C to Straight edge of Panel A, centered on a 2" inner Tape (butt joint) $\pm 1/8"$	37 2 dec. 04	7104-25 Bonding	1	—	—	1	11	Dec 2/04
3- a) Att. Panel D to Panel B (shorter edge) with 2" inner Tape	37 2 dec. 04		1	—	—	1	11	Dec 2/04
4- a) Baffle Ass'y. with 2" Tape $\pm 1/8"$	117 2 dec. 04		1	—	—	1	11	Dec 2/04
5- a) Attach Baffle Ass'y. to Bag (in 3 stages, minimum)	117 3 dec. 04	7104-26 Bonding	1	—	—	1	11	Dec 6/04
6- a) Perform Baffle Test on Chamber # 1 after a 3 day Cure Time	12 8 dec. 04		1	—	—	1	4	Dec 8/04
7- a) Closure of 1" Main Seam (overlap) $\pm 1/8"$	37 9 dec. 04		1	—	—	1	11	Dec 9/04
b) Attach ID Patch (ref. CAR 04-003)	37 16 dec. 04	7104-26 Testing (see sheet 2)	1	—	—	1	11	Dec 17/04
8- a) Perform Baffle Test on Chamber # 2 after a 3 day Cure Time	12 Dec 13/04		1	—	—	1	4	Dec 13/04
9- a) Attach 1" wide Finishing Tape on all Butt Joints & Main Seam, Centered $\pm 1/8"$	37 13 dec. 04		1	—	—	1	11	Dec 17/04
b) Att. Inspected Girt Ass'y. (Form 193-8927, Girt) to Bag	117 15 dec. 04	Bonding	1	—	—	1	11	Dec 17/04
c) Attach 5" split patch on each end (x 4)	117 16 dec. 04		4	—	—	4	11	Dec 17/04

TULMAR #3

Product Inspection Form # 193-8927(Tube & Final)

Rev. D Sheet 2/3

Stages & Descriptions	Operator No. + Date	Operation	Accept. Qty.	Reject. Qty.	NCR	Total Accept.	Insp. Stamp	Date
10- a) Final Test b) Inspector to Stamp on ID Patch: Serial No.: 21829-04 & Inspection Stamp beside the S/N	12 Dec 23/04	Testing (see sheet 3)	1	-	-	1		Dec 21/04
	12 Dec 23/04		1	-	-	1		Dec 23/04

Upon completion of the (final) leakage test, the ID Patch shall be stamped with 5/16 " high lettering and black ink: serial number (7 digits), provided by DART (refer to W/O). Verify the integrity of the Valves (Threads/gaskets).

Test Conditions – All tests shall be performed in the following conditions:

- a) Atmospheric pressure between 28 to 32 inches of mercury (94.8 kPa to 108.4 kPa) b) Temperature shall be 20°C ± 5°C c) Relative humidity shall be 80 % or less

Baffle Test:

Over Pressure: Using socket tool and torque wrench s/n 0801300327, tight all (3) Valves to 40 inch pound, the JIC adaptor s/n 44537 between 15 to 20 foot pounds. Block the Relief valve with flagged pin. Inflate Chamber to 4.36 PSI (30 kPa) with clean dry air source. Using leak detector or non detergent soap, check all the valves and seams to detect leakage. Leakage shall be cause for rejection (soap during testing period). Fuzz is not considered a failure. After 5 minutes, there shall be no evidence of distortion or damage to the seams.

Inflation Test: Lower Chamber to 3.00 psi , re-adjust after 45 minutes. After 1 hour, take the pressure reading of the chamber. Compensate the pressure reading by allowing for any temperature and barometric pressure changes during the test period. The corrected pressure reading shall not be less than 2.94PSI in order for the Test to be acceptable.

- 0.054 PSI for each 1°C of temperature increase
- + 0.054 PSI for each 1°C of temperature decrease
- + 0.049 PSI for each 0.1 inch of barometric increase
- 0.049 PSI for each 0.1 inch of barometric decrease

Dec 8/04 Chambers	Pressure	5 Min. Over P. & Soap Test	45 Minute Stabilizing Period			1 Hour Test									Leaky 16%	
		Pass / Fail	Design Pressure	Time On	Time Off	Design Pressure	Time On	Time Off	Read'g	Temp. Start/End	Barom. Start/End	Adjust.	Final Read'g	Pass / Fail		
# 1 (see note 1)	4.36 PSI	Pass	3.00 PSI	8:15	9:00	3.00 PSI	9:00	10:00	3. PSI PSI	22°	22°	29.43	29.49	+0.029	3. PSI PSI	Pass
Re-Test																
Dec 13/04 (Main Seam)	4.36 PSI	Pass	3.00 PSI	8:30	9:15	3.00 PSI	9:15	10:15	3. PSI PSI	23°	23°	29.28	29.29	+0.004	3. PSI PSI	Pass
Re-Test																

Humidity 16%

Note 1: Chamber # 1 requires Dart Aerospace Approval Signature: John Proulx

Date: 09/12/08

Observations: OK

Final Test: Leakage / Relief Valves: The chambers are to be tested separately (one at a time). Through the Topping Up Valve, inflate chamber to approximately 2.00 PSI, soap the (3) valves to detect leakage. Then slowly inflate chamber until pressure relief valve vents. Use leak detector or non detergent soap to detect the opening and the closing. A hissing sound may also denote that the valve has started to open. Record the opening/closing time and pressure. The opening pressure shall be between 3.3 - 3.5 PSI and the closing pressure shall not be less than 3.00 PSI, in order for the test to be acceptable. After 24 hours, take the pressure reading of the chamber. Compensate the pressure reading by allowing for any temperature and barometric pressure changes during the test period (see sheet 2). The corrected pressure reading shall not be less than 1.60 PSI in order for the Test to be acceptable.

Upon completion of the Final Test, inflate both chambers equally to approx. 2.00 PSI and perform Dimensional Verification below. Perform additional inspection of the tapes and girt assembly.

Pressure Relief Valve Test	PRV Serial Numbers	Opening		Closing		Pass / Fail
		Time ON	Pressure	Time	Close	
Chamber # 1	33186	8:20	3.27 PSI	8:25	3.00 PSI	Pass
Chamber # 2 (Main Seam)	33188	8:35	3.32 PSI	8:40	3.00 PSI	Pass

Chambers	Design (closing) Pressure as per above	24 Hour Leakage Test							Pass / Fail
		Time On	Time Off	Read'g	Temp. Start/End	Barom. Start/End	Adjust.	Final Read'g	
Dec-20/04 # 1	3.00 PSI	8:25	8:25	2.36 PSI	24°C 23°C	29.87 29.81	+0.054 -0.029	2.38 PSI	Pass
Re-Test									
Dec 21/04 (Main Seam)	3.00 PSI	8:40	8:40	1.95 PSI	23 23	29.82 29.95	-0.063	2.01 PSI	Pass
Re-Test									

Dim.	Tol.	Actual Dim.	Pass/Fail	Dim.	Tol.	Actual Dim.	Pass/Fail	Dim.	Tol.	Actual Dim.	Pass/Fail
3.5	± 0.100 *	3.5	Pass	47.0	± 0.5	46 3/4	Pass	24.75	± 0.5	25.25	Pass
7.3	± 0.100 *	7.3	Pass					31.0	± 0.5	31 3/16	Pass

* = IAW QSI 018, rev. A dated 03-05-29

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Submission of Adhesive Testing:

		Subm. Date / am/pm	Pass/Fail	Subm. Date / am/pm	Pass/Fail	Subm. Date / am/pm	Pass/Fail	Subm. Date / am/pm	Pass/Fail
Peel	24 hour	Dec 1/04	Pass	Dec 1/04	Pass	Dec 2/04	Pass	Dec 16/04	Pass
	7 day	Dec 1/04	Pass	Dec 1/04	Pass	Dec 2/04	Pass	Dec 16/04	Pass
Shear	24 hour	Dec 1/04	Pass	Dec 1/04	Pass	Dec 2/04	Pass	Dec 16/04	Pass
	7 day	Dec 1/04	Pass	Dec 1/04	Pass	Dec 2/04	Pass	Dec 16/04	Pass

TULMAR**Product Inspection Form # 193-8927(Tube & Final)**

Rev. D Sheet 1-3

Description: Float Bag Assembly

-Items are Manufactured IAW Process Control Specification No. 001, 002, 003, 004, 005, 006, and are to be 100% inspected I.A.W. P.I.P. 001

W/O: 3664 TSS P/N: 8927 Qty.: 12 Customer P/N: D3218-041 Dwg. No.: D3218 Rev.: A Date: _____

Cutting IAW PCS 003		Marking IAW PCS 004		Bonding IAW PCS 002		Silkscreen	
Operator No.	Date	Operator No.	Date	Operator No.	Date	Operator No.	Date
85	Nov 30/04	73	Dec 01/04	(Documented below)		73	Dec 15/04
						73	Nov. 15/04


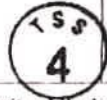
* Note: PCS 006, there shall be a total of 2 samples submitted for the Testing of the Adhesive (Peel and Shear Test), at start and end of every production day, record on sheet 3/3

Stages & Descriptions	Operator No. + Date	Operation	Accept. Qty.	Reject. Qty.	NCR	Total Accept.	Insp. Stamp	Date
1- a) Attach Panel A (uneven edge) to larger edge of Panel B, centered on a 2" inner tape (butt joint) $\pm 1/8"$ b) Attach (6) Valve Flanges on Panel A: 2-Relief, 2-Inlet & 2- Topping Up c) Attach (6) Doublers on above Flanges	37 3dec.04 37 2dec.04 37 2dec.04	7104-25 Bonding	1 6 6	- - -	- - -	1 6 6	SS 11 11	Dec 3/04 Dec 2/04 Dec 2/04
2- a) Attach Panel C to Straight edge of Panel A, centered on a 2" inner Tape (butt joint) $\pm 1/8"$	37 3dec.04	7104-25	1	-	-	1	SS 11	Dec 3/04
3- a) Att. Panel D to Panel B (shorter edge) with 2" inner Tape	37 3dec.04		1	-	-	1	SS 73	Dec 3/04
4- a) Baffle Ass'y. with 2" Tape $\pm 1/8"$	117 3dec.04	Bonding	1	-	-	1	SS 73	Dec 3/04
5- a) Attach Baffle Ass'y. to Bag (in 3 stages, minimum)	117 6dec.04		1	-	-	1	SS 11	Dec 6/04
6- a) Perform Baffle Test on Chamber # 1 after a 3 day Cure Time	12 Dec 9 2004	Testing (see sheet 2)	1	-	-	1	SS 4	Dec 9/04
7- a) Closure of 1" Main Seam (overlap) $\pm 1/8"$ b) Attach ID Patch (ref. CAR 04-003)	37 13dec.04 12 21dec.04	7104-26 Bonding	1 1	- -	- -	1 1	SS 11 SS 11	Dec 13/04 Dec 21/04
8- a) Perform Baffle Test on Chamber # 2 after a 3 day Cure Time	12 16dec.04	Testing (see sheet 2)	1	-	-	1	SS 11	Dec 16/04
9- a) Attach 1" wide Finishing Tape on all Butt Joints & Main Seam, Centered $\pm 1/8"$ b) Att. Inspected Girt Ass'y. (Form 193-8927, Girt) to Bag c) Attach 5" split patch on each end (x 4)	37 17dec.04 117 21dec.04 117 21dec.04	7101-26 Bonding	1 1 1	- - -	- - -	1 1 1	SS 11 SS 11	Dec 22/04 Dec 22/04 Dec 22/04

TULMAR

Product Inspection Form # 193-8927(Tube & Final)

Rev. D Sheet 2/3

Stages & Descriptions	Operator No. + Date	Operation	Accept. Qty.	Reject. Qty.	NCR	Total Accept.	Insp. Stamp	Date
10- a) Final Test b) Inspector to Stamp on ID Patch: Serial No.: B 21829-05 & Inspection Stamp beside the S/N	12 Dec 23/04 12 Dec 23/04	Testing (see sheet 3)	1 1	— —	— —	1 1	 	Dec 23/04 Dec 23/04
Upon completion of the (final) leakage test, the ID Patch shall be stamped with 5/16 " high lettering and black ink: serial number (7 digits), provided by DART (refer to W/O). * Verify the integrity of the Valves (Threads/gaskets).								

Test Conditions – All tests shall be performed in the following conditions:

a) Atmospheric pressure between 28 to 32 inches of mercury (94.8 kPa to 108.4 kPa) b) Temperature shall be 20°C ± 5°C c) Relative humidity shall be 80 % or less

Baffle Test:

Over Pressure: Using socket tool and torque wrench s/n 0801300327, tight all (3) Valves to 40 inch pound, the JIC adaptor s/n 44537 between 15 to 20 foot pounds. Block the Relief valve with flagged pin. Inflate Chamber to 4.36 PSI (30 kPa) with clean dry air source. Using leak detector or non detergent soap, check all the valves and seams to detect leakage. Leakage shall be cause for rejection (soap during testing period). Fuzz is not considered a failure. After 5 minutes, there shall be no evidence of distortion or damage to the seams.

Inflation Test: Lower Chamber to 3.00 psi , re-adjust after 45 minutes. After 1 hour, take the pressure reading of the chamber. Compensate the pressure reading by allowing for any temperature and barometric pressure changes during the test period. The corrected pressure reading shall not be less than 2.94 PSI in order for the Test to be acceptable.

- 0.054 PSI for each 1°C of temperature increase

+ 0.054 PSI for each 1°C of temperature decrease

+ 0.049 PSI for each 0.1 inch of barometric increase

- 0.049 PSI for each 0.1 inch of barometric decrease

Chambers	Pressure	5 Min Over P & Soap Test	45 Minute Stabilizing Period			1 Hour Test								
		Pass / Fail	Design Pressure	Time On	Time Off	Design Pressure	Time On	Time Off	Read'g	Temp. Start/End	Barom. Start/End	Adjust.	Final Read'g	Pass / Fail
92004														
# 1 (see note 1)	4.36 PSI	Pass	3.00 PSI	8:35	9:20	3.00 PSI	9:30	10:30	3.02 PSI	22° 22°	30.05 30.04	- 0.004	3. PSI PSI	Pass
Re-Test														
1/162 2004														
(In Seam)	4.36 PSI	Pass	3.00 PSI	10:55	11:40	3.00 PSI	11:40	12:40	3.01 PSI	23° 23°	29.87 29.84	0.014	2.99 PSI	Pass
Re-Test														

Note 1: Chamber # 1 requires Dart Aerospace Approval Signature: Chris Thomas

Date: 04/12/10

Observations: One area on inside seam to be pushed down / glued. Otherwise OK

Final Test: Leakage / Relief Valves: The chambers are to be tested separately (one at a time). Through the Topping Up Valve, inflate chamber to approximately 2.00 PSI, soap the (3) valves to detect leakage. Then slowly inflate chamber until pressure relief valve vents. Use leak detector or non detergent soap to detect the opening and the closing. A hissing sound may also denote that the valve has started to open. Record the opening/closing time and pressure. The opening pressure shall be between 3.3 – 3.5 PSI and the closing pressure shall not be less than 3.00 PSI, in order for the test to be acceptable. After 24 hours, take the pressure reading of the chamber. Compensate the pressure reading by allowing for any temperature and barometric pressure changes during the test period (see sheet 2).

The corrected pressure reading shall not be less than 1.60 PSI in order for the Test to be acceptable.

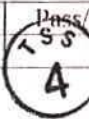
Upon completion of the Final Test, inflate both chambers equally to approx. 2.00 PSI and perform Dimensional Verification below. Perform additional inspection of the tapes and girt assembly.

Pressure Relief Valve Test	PRV Serial Numbers	Opening		Closing		Pass / Fail
		Time ON	Pressure	Time	Close	
Chamber # 1	33183	11:55	3.50 PSI	12:00	3.02 PSI	Pass
Chamber # 2 (Main Seam)	33184	12:50	3.26 PSI	12:55	3.01 PSI	Pass

Chambers	Design (closing) Pressure as per above	24 Hour Leakage Test									
		Time On	Time Off	Read'g	Temp. Start/End		Barom. Start/End		Adjust.	Final Read'g	Pass / Fail
Dec 23/04 #1	3.02 PSI	12:00	12:00	2.09 PSI	23	23	29.75	29.94	- +0.093	2.18 PSI	Pass
Re-Test											
Dec 22/04 Main Seam)	12:55 PSI	12:55	12:55	2.53 PSI	23	23	29.94	29.41	- -0.259	2.27 PSI	Pass
Re-Test											

Dim.	Tol.	Actual Dim.	Pass/Fail	Dim.	Tol.	Actual Dim.	Pass/Fail	Dim.	Tol.	Actual Dim.	Pass/Fail
.5	± 0.100 *	3.3/14	Pass	47.0	± 0.5	46.9/46.34	Pass	24.75	± 0.5	25 1/16	Pass
.3	± 0.100 *	7.25	Pass					31.0	± 0.5	31 3/8	Pass

* = IAW QSI 018, rev. A dated 03-05-29



Submission of Adhesive Testing:

	Subm. Date / am/pm	Pass/Fail	Subm. Date / am/pm	Pass/Fail	Subm. Date / am/pm	Pass/Fail	Subm. Date / am/pm	Pass/Fail
Peel	24 hour	Dec 3/04	Pass	Dec 13/04	Pass	Dec 17/04	Pass	
	7 day	Dec 3/04	Pass	Dec 13/04	Pass	Dec 17/04	Pass	
Shear	24 hour	Dec 3/04	Pass	Dec 13/04	Pass	Dec 17/04	Pass	
	7 day	Dec 3/04	Pass	Dec 13/04	Pass	Dec 17/04	Pass	

#12
Description: Float Bag Assembly

-Items are Manufactured IAW Process Control Specification No. 001, 002, 003, 004, 005, 006, and are to be 100% inspected I.A.W. P.I.P. 001

W/O: 3664 TSS P/N: 8927 Qty.: 12 Customer P/N: D3218-041 Dwg. No.: D3218 Rev.: A Date: Nov/Dec/04

Cutting IAW PCS 003		Marking IAW PCS 004		Bonding IAW PCS 002		Silkscreen	
Operator No.	Date	Operator No.	Date	Operator No.	Date	Operator No.	Date
85	Nov 30/04	73	Dec 01/04	(Documented below)		73	Dec 15/04
						73	Nov. 15/04

* Note: PCS 006, there shall be a total of 2 samples submitted for the Testing of the Adhesive (Peel and Shear Test), at start and end of every production day, record on sheet 3/3

Stages & Descriptions	Operator No. + Date	Operation	Accept. Qty.	Reject. Qty.	NCR	Total Accept.	Insp. Stamp	Date
1- a) Attach Panel A (uneven edge) to larger edge of Panel B, centered on a 2" inner tape (butt joint) ± 1/8"	37 6 dec. 04	7104-25	1	—	—	1	(SS) 11	Dec 6/04
b) Attach (6) Valve Flanges on Panel A: 2-Relief, 2-Inlet & 2- Topping Up	71-110	Bonding	6	—	—	6	(SS) 9	Dec. 6/04
c) Attach (6) Doublers on above Flanges	6/12/04		6	—	—	6	(SS) 11	Dec 6/04
2- a) Attach Panel C to Straight edge of Panel A, centered on a 2" inner Tape (butt joint) ± 1/8"	37 6 dec. 04	7104-25	1	—	—	1	(SS) 11	Dec 6/04
3- a) Att. Panel D to Panel B (shorter edge) with 2" inner Tape	37 6 dec. 04	Bonding	1	—	—	1	(SS) 11	Dec 6/04
4- a) Baffle Ass'y. with 2" Tape ± 1/8"	117 6 dec. 04		1	—	—	1	(SS) 11	Dec 6/04
5- a) Attach Baffle Ass'y. to Bag (in 3 stages, minimum)	117 7 dec. 04	Testing	1	—	—	1	(SS) 4	Dec 7/04
6- a) Perform Baffle Test on Chamber # 1 after a 3 day Cure Time	12 Dec 10/2004	(see sheet 2)	1	—	—	1	(SS) 4	Dec 10/04
7- a) Closure of 1" Main Seam (overlap) ± 1/8"	37 13 dec. 04	Bonding	1	—	—	1	(SS) 11	Dec 13/04
b) Attach ID Patch (ref. CAR 04-003)	37 22 dec. 04	7104-26	1	—	1	1	(SS) 11	Dec 22/04
8- a) Perform Baffle Test on Chamber # 2 after a 3 day Cure Time	12 17 dec 04	Testing	1	—	—	1	(SS) 4	Dec 17/04
		(see sheet 2)	1	—	—	1	(SS) 11	Dec 21/04
9- a) Attach 1" wide Finishing Tape on all Butt Joints & Main Seam, Centered ± 1/8"	37 21 dec. 04	Bonding	1	—	—	1	(SS) 11	Dec 21/04
b) Att. Inspected Girt Ass'y. (Form 193-8927, Girt) to Bag	37 21 dec. 04	7104-26	1	—	—	1	(SS) 11	Dec 21/04
c) Attach 5" split patch on each end (x 4)	37 21 dec. 04		1	—	—	1	(SS) 11	Dec 21/04

Stages & Descriptions	Operator No. + Date	Operation	Accept. Qty.	Reject. Qty.	NCR	Total Accept.	Insp. Stamp	Date
10- a) Final Test b) Inspector to Stamp on ID Patch: Serial No.: B 21829-06 & Inspection Stamp beside the S/N	12 Jan 4/05	Testing (see sheet 3)	1	—	—	1	4	Jan 4/05
	12 Jan 4/05		1	—	—	1	4	Jan 4/05

Upon completion of the (final) leakage test, the ID Patch shall be stamped with 5/16" high lettering and black ink: serial number (7 digits), provided by DART (refer to W/O). * Verify the integrity of the Valves (Threads/gaskets).

Test Conditions – All tests shall be performed in the following conditions:

a) Atmospheric pressure between 28 to 32 inches of mercury (94.8 kPa to 108.4 kPa) b) Temperature shall be 20°C ± 5°C c) Relative humidity shall be 80 % or less

Raffle Test:

Over Pressure: Using socket tool and torque wrench s/n 0801300327, tight all (3) Valves to 40 inch pound, the JIC adaptor s/n 44537 between 15 to 20 foot pounds. Block the Relief Valve with flagged pin. Inflate Chamber to 4.36 PSI (30 kPa) with clean dry air source. Using leak detector or non detergent soap, check all the valves and seams to detect leakage. Leakage shall be cause for rejection (soap during testing period). Fuzz is not considered a failure. After 5 minutes, there shall be no evidence of distortion or damage to the seams.

Inflation Test: Lower Chamber to 3.00 psi, re-adjust after 45 minutes. After 1 hour, take the pressure reading of the chamber. Compensate the pressure reading by allowing for any temperature and barometric pressure changes during the test period. The corrected pressure reading shall not be less than 2.94 PSI in order for the Test to be acceptable.

- 0.054 PSI for each 1°C of temperature increase

+ 0.054 PSI for each 1°C of temperature decrease

+ 0.049 PSI for each 0.1 inch of barometric increase

- 0.049 PSI for each 0.1 inch of barometric decrease

Chambers	Pressure	5 Min. Over P. & Soap Test	45 Minute Stabilizing Period			1 Hour Test										
		Pass / Fail	Design Pressure	Time On	Time Off	Design Pressure	Time On	Time Off	Read'g	Temp. Start/End	Barom. Start/End	Adjust.	Final Read'g	Pass / Fail		
Dec 10/04																
# 1 (see note 1)	4.36 PSI	Pass	3.00 PSI	10:30	11:15	3.00 PSI	11:20	12:20	2.99 PSI	23°	23°	29.72	29.70	-0.009	2.98 PSI	Pass
Re-Test																
Dec 17/04																
# 2 (Main Seam)	4.36 PSI	Pass	3.00 PSI	8:15	9:00	3.00 PSI	9:00	10:00	2.98 PSI	23°	23°	29.83	29.89	+0.029	3.00 PSI	Pass
Re-Test																

Note 1: Chamber # 1 requires Dart Aerospace Approval Signature: Chm Puvann Date: 09.12.10

Observations: OK

Final Test: Leakage / Relief Valves: The chambers are to be tested separately (one at a time). Through the Topping Up Valve, inflate chamber to approximately 2.00 PSI, soap the (3) valves to detect leakage. Then slowly inflate chamber until pressure relief valve vents. Use leak detector or non detergent soap to detect the opening and the closing. A hissing sound may also denote that the valve has started to open. Record the opening/closing time and pressure. The opening pressure shall be between 3.3 - 3.5 PSI and the closing pressure shall not be less than 3.00 PSI, in order for the test to be acceptable. After 24 hours, take the pressure reading of the chamber. Compensate the pressure reading by allowing for any temperature and barometric pressure changes during the test period (see sheet 2).

The corrected pressure reading shall not be less than 1.60 PSI in order for the Test to be acceptable.

Upon completion of the Final Test, inflate both chambers equally to approx. 2.00 PSI and perform Dimensional Verification below. Perform additional inspection of the tapes and girt assembly.

Pressure Relief Valve Test

Chamber #	PRV Serial Numbers	Opening		Closing		Pass / Fail
		Time ON	Pressure	Time	Close	
Chamber # 1 Jan 3/05	33187	8:40	3.32 PSI	8:50	3.00 PSI	Pass
Chamber # 2 (Main Seam) Dec 22/04	33179	1:10	3.48 PSI	1:15	3.04 PSI	Pass

24 Hour Leakage Test

hurry 11%

Chambers	Design (closing) Pressure as per above	Time On	Time Off	Read'g	Temp. Start/End	Barom. Start/End	Adjust.	Final Read'g	Pass / Fail
# 1	3.00 PSI	8:50	8:50	2.59 PSI	24° 24°	30.09 30.10	-0.004	2.60 PSI	Pass
Re-Test									
# 2 (Main Seam)	3.04 PSI	1:15	1:15	2.76 PSI	23° 23°	29.94 29.40	-0.264	2.49 PSI	Pass
Re-Test									

Dim.	Tol.	Actual Dim.	Pass/Fail	Dim.	Tol.	Actual Dim.	Pass/Fail	Dim.	Tol.	Actual Dim.	Pass/Fail
3.5	± 0.100 *	3.7/16	Pass	47.0	± 0.5	47	Pass	24.75	± 0.5	25 1/4	Pass
7.3	± 0.100 *	7.3	Pass					31.0	± 0.5	31 1/4	Pass

* = IAW QSI 018, rev. A dated 03-05-29

Submission of Adhesive Testing:

		Subm.Date / am-pm	Pass/Fail	Subm.Date / am-pm	Pass/Fail	Subm.Date / am-pm	Pass/Fail	Subm.Date / am-pm	Pass/Fail
Peel	24 hour	Dec 6/04	Pass	Dec 7/04	Pass	Dec 21/04	Pass		
	7 day	Dec 6/04	Pass	Dec 7/04	Pass	Dec 21/04	Pass		
Shear	24 hour	Dec 6/04	Pass	Dec 7/04	Pass	Dec 21/04	Pass		
	7 day	Dec 6/04	Pass	Dec 7/04	Pass	Dec 21/04	Pass		